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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/661,221

09/12/2003

Sean Baggott

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EXAMINER

DRODGE, JOSEPH W

ART UNIT

PAPER NUMBER

1723

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/661,221

Applicant(s)

BAGGOTT ET AL.

Examiner

Joseph W. Drodge

Art Unit

1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

Claims 1 and 3-34 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Each of the independent claims now recite that feed water is directed directly from hydrocarbon and/or chemical processing equipment to a reverse osmosis system with there not being a step of pre-filtering. However, numerous portions of the instant Specification describe various pre-filters comprised in pre-treatment steps that are generally employed, see paragraphs 22,29 and 38, etc. of the instant Specification. Such paragraphs describe pre-filters in the form of carbon filtration, ultrafilters, microfilters and nanofiltration steps. ***The negative limitations added concerning absence of pre-filtering step thus each constitute New Matter, not supported by the instant Specification.***

Claims 11 and 19-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Part b) of claim 19 now recites a negative limitation concerning absence of a method step. However, inclusion of a method step or negative limitation therefor in an apparatus claim is confusing and it is unclear whether any structural component or limitation is added by such language.

Claim 23 conflicts with claim 19 in reciting specific types of pre-filters employed in contrast to claim 19 from which it depends reciting absence of a filter.

Similarly, claim 11 conflicts with claim 1 in reciting specific types of pre-filters employed in contrast to claim 1 from which it depends reciting absence of a filter.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1,3-7,10-14,19,20,22,23,31-34 are rejected under 35 U.S.C. 102(b) as being anticipated by Dyke patent 6,054,050.

Disclosed are method and apparatus for removing inorganic and organic contaminants from waste water downstream of and in-line with hydrocarbon/chemical processing equipment, including reverse osmosis system membrane(s) (Abstract, column 1, lines 8-25 and 43-67). Contaminants are listed at column 2, lines 14-27 and also may contain ammonia (column 5, lines 58-61). Use of pre-filtering is only optional (see column 2, lines 29-35 ... "if any...for example, a sand filter...In general...". Use of a

Art Unit: 1723

pre-filtering step in the form of ultrafiltration is also given as optional since column 2, lines 13-16 and 26-28 and also 47-48 state that the treated refinery wastewater stream only typically and ordinarily, thus not always, contains contaminants that are in insoluble form, thus requiring removal by ultrafiltration (column 2, lines 47-52). For claims 1, and 20, pressure is applied to the feed stream by pump (column 5, lines 2-6). For the independent claims and especially claims 3,5 and 34, the contaminants include ammonia or ammonium and other organic materials (column 2, lines 14-28 and column 5, lines 55-65). For claim 4, the membrane may be a thin-film composite (column 4, lines 44-46 and be of a spiral-wound module (column 4, lines 58-59). For claims 6,7,30,31 and 33, pH is adjusted by addition of any of strong bases (column 5, lines 61-63). For claims 10,11, see pre-treatment ultrafiltration membrane (column 2, lines 47-65, etc.). For claims 12, see elevated pressures at column 4, lines 40-42 and column 7, lines 63-66). For claims 13, the temperature of operation may be ambient or somewhat elevated. For claim 14, a high percentage of contaminants are removed from the permeate (column 4, lines 10-13).

Claims 1,6-10,12-22,24-31,33 and 34 are rejected under 35 U.S.C. 102(e) as being anticipated by Mukhopadhyay patent 6,537,456.

Disclosed are method and an apparatus system for removing inorganic and organic contaminants from waste water downstream of and in-line with hydrocarbon/chemical processing equipment including refineries (column 24, lines 18-32); the system including reverse osmosis system membrane(s) in series and in

Art Unit: 1723

sequential stages (column 23, lines 49-62). Although there is no pre-filter, there are other pre-treatment means including cation or anion exchange and decarbonation (figure 2). For claims 1,20,24 and 29, pressure is applied to the feed stream by pump 26. For the independent claims and especially claims 17 and 27, contaminants include organic acids and other organic materials (column 23, line 57). For claims 6,7,9,16,18 and 24-26, and also claims 30,31 and 33, pH is adjusted by addition of any of strong bases, i.e. "caustic" chemicals or acids (elements 13-16 of the figures). For claim 8, see decarbonator/dearator 20. For claims 10,11,22 and 28, see pre-treatment ion exchange component 12. For claims 12 and 34, see elevated pressures at (column 21, lines 14-55). For claims 13, the temperature of operation may be ambient or somewhat elevated (as the Specification is silent as to any heating or cooling of the feed stream). For claims 14, a high percentage of contaminants are removed from the permeate (Table 1 of column 16). For claim 15, the permeate is recycled to the refinery/hydrocarbon process (column 23, lines 47-50). For claims 16-18,21,22 and 24-29, RO membranes in series are discussed at column 22,lines 6-39 and column 23, lines 18-25) .

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1723

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Muknopadhyay in view of Dyke. Claim 23 differs in requiring the pre-treatment to include nanofiltration or ultrafiltration. Dyke teaches such ultrafiltration preceding RO treatment of waste water from chemical or oil refinery equipment (column 3, lines 16-29). It would have been further obvious to have utilized the ultrafiltration of Dyke in the system of Mudkohpadhyay to remove insoluble inorganic contaminants and extend the useful life of the reverse osmosis membranes.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hughes patent 7,186,344 teaches industrial waste water such as chemical processing wastewater being passed directly to reverse osmosis membranes, optionally without any form of pre-treatment.

Applicant's arguments filed on February 12, 2007 have been fully considered but they are not persuasive. It is argued that neither Dyke or Mukhopadhyay disclose treatment of waste water from industrial processes concerning hydrocarbon or chemical processing. The rejections of the claims over Dyke and Mukhopadhyay, respectively, are in fact directed to reverse osmosis treatment of waste water from industrial oil and/or chemical refinery plant operations. Dyke and Mukhopadyay each explicitly teach treatment of waste water from such sources.

It is argued that each of Dyke and Mukhopadyay require pre-treatment including a pre-filtering step. However, Dyke teach that pre-filtering in a sand filter as well as ultrafilterin is usually or often, but not always performed; while Mukhopadyay teach pre-treatment by ion exchange and decarbonation/dearation and pH adjustment but no form of pre-filtering.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).



Art Unit: 1723

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Drodge at telephone number 571-272-1140. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Griffin, can be reached at 571-272-1189. The fax phone number for the examining group where this application is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either private PAIR or Public PAIR, and through Private PAIR only for unpublished applications. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JWD

March 21, 2007

  
JOSEPH DRODGE  
PRIMARY EXAMINER